UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/688,657	10/16/2000	Enrique Hernandez-Valencia	18-1	1470

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EXAMINER
LAM, DANIEL K

ART UNIT	PAPER NUMBER
2667	2

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 October 2000*.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5 and 6*.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

   Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 25-28 are rejected under 35 U.S.C. 101 because the claimed inventions are

   directed to non-statutory subject matter.

   An invention *may* be patented only if it falls within one of the four statutory

   classes of subject matter under 35 U.S.C. § 101, namely, useful process, machine,

   manufacture, composition of matter, or any new and useful improvement thereof.

   Furthermore, an invention *may not* be patented if it falls within one of the

   judicially determined classes of subject matter, namely, laws of nature,

   mathematical algorithms, scientific principles, physical phenomena, and abstract

   ideas (see MPEP § 2106).

   In claims 25-28, the subject matter of the claimed invention is directed to non-

   functional descriptive material in a transmission frame representing data

   embodied in signal. Data fields within the frame do not perform any physical acts

   to achieve practical applications.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

   obviousness rejections set forth in this Office action:

   (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the

differences between the subject matter sought to be patented and the prior
art are such that the subject matter as a whole would have been obvious at
the time the invention was made to a person having ordinary skill in the art
to which said subject matter pertains. Patentability shall not be negatived
by the manner in which the invention was made.

4. Claims 1-7 and 10-28 are rejected under 35 U.S.C. 103(a) as being unpatentable

over U. S. Pat. No. 6,430,201 issued to Azizoglu et al. in view of the admitted

prior art, titled, "A Simple Data Link (SDL) Protocol for High-Speed Packet

Networks", written by Doshi et al.

Regarding claims 1 and 15, Azizoglu et al. discloses the claim limitations of a

method and an apparatus for use in a communication system, comprising:

- An 8B/10B codec 22-1 for decoding data from upper layer (Decoding block

  encoded data for removing the block encoding from the data; claim 1. A

  decoder operative on block-encoded data for removing the block encoding

  from the data; claim 15). See fig. 3, and col. 4, lines 42-44.

However, Azizoglu et al. does not disclose the claim limitations of:

- Mapping the data into a variable length protocol data unit (PDU) for

  transmission over a synchronous transport medium (claim 1).

- A mapper for mapping the data into a variable length protocol data unit (PDU)

  for transmission over a synchronous transport medium (claim 15).

Doshi et al. discloses the claim limitations of a SDL frame over Sonet comprising

a Length Indicator field and a variable length Information field. See fig. 3, SDL

Frame Format, page 7, section 1, Length Indicator Field, lines 1-2, and section 4,

Information Field, lines 4-5.

Therefore, it would have been obvious to those having ordinary skill in the art, at

the time of invention, to remove the block encoding from the data and to map the

data into a variable length PDU, such as SDL, for couple of reasons. Firstly,

removing blocking encoded information from the block encoded data will allow

multiple signals, such as multiple GbE or Fibre Channel, to be carried on a signal

OC-48 transport signal as taught by Azizoglu et al. (see col. 3, lines 40-43).

Secondly, one of the key motivations of using SDL is to replace the HDLC to

transport the upper layer data over the Sonet medium. Since the HDLC uses flags

with bit stuffing operation for frame boundary delineation. The bit stuffing

operation expands offered load. This causes interferences with the QoS

management as taught by Doshi et al. See page 2, second paragraph, lines 11-13.

Regarding claims 2, 5, 16, and 19, in addition to disclose the claim limitations

regarding claims 1 and 15, Doshi et al. further discloses the PDU of a Simplified

Data Link, SDL (claims 5 and 19) comprises a header portion and a payload

portion. The payload portion comprises an Offset Field that contains control

frames between a transmitter and a receiver. The length indicator, LI, has special

values to indicate these types of control frames (Type field representing whether

the data represents a data frame or a control frame; claims 2 and 16). See fig. 3,

SDL Frame Format, and page 7, Offset Field section, second paragraph, lines 1-3.

Regarding claims 3, 4, 17, and 18, in addition to disclose the claim limitations regarding claims 1 and 15, Azizoglu et al. further discloses the signals are being mapped via a Sonet Framer 26 into byte synchronous Sonet OC-48 medium for transport. See fig. 2, and col. 4, lines 60-62.

Regarding claims 6 and 20, in addition to disclose the claim limitations regarding claims 1 and 15, Azizoglu et al. further discloses the decoding step of receiving an Optics GbE/FC fibre channel signal representing the block encoded data; and decoding the signals via 8B/10B codec 22-1 for removing the block encoding from the data. See fig. 3 and col. 4, lines 42-44.

Regarding claim 7, although Azizoglu et al. does not explicitly further disclose the decoding step of receiving an enterprise systems connection, ESCON, signal representing the block encoded data; and decoding the signal for removing the block encoding from the data. It is common practice in the art that the ESCON uses similar decoding scheme as the gigabit Ethernet and fibre channel. Therefore, it would have been obvious to those having ordinary skill in the art, at the time of invention, to include the ESCON into the system since there are huge number ESCON based computer network and system installations built by IBM and others since early 1990s.

Regarding claims 10 and 21, Azizoglu et al. discloses the claim limitations of a method and an apparatus comprising:

- Receiving a Sonet signal via Sonet Framer 36 (Receiving a signal from a synchronous transport medium; claim 10. A decoder operative on a received a signal from a synchronous transport medium; claim 21). See fig. 4, and col. 6, lines 7-9.

- Encode the signal via 8B/10B codec 22-1 (Block encoding the data; claim 10. An encoder for block encoding the data; claim 21). See fig. 6, and col. 6, lines 12-14.

However, Azizoglu et al. does not disclose the claim limitations comprising:

- The signal represents information conveyed in a variable length protocol data unit, PDU (claims 10 and 21), and

- Decoding the PDU by examining a type field indicating whether it is a data or a control frame (claims 10 and 21).

Doshi et al. discloses the claim limitations comprising:

- A SDL frame over Sonet comprising a Length Indicator and a variable length Information fields. See fig. 3, SDL Frame Format, and page 7, section 1, Length Indicator Field, lines 1-2.

- The payload portion comprises an Offset Field that contains control frames. The Length Indicator has special values to indicate the types of control frames. See fig. 3, SDL Frame Format, and page 7, Offset Field section, second paragraph, lines 1-3.

Therefore, it would have been obvious to those having ordinary skill in the art, at the time of invention, to decode the PDU by examining the type field and block encode the data before transmitting to the upper layer, for couple of reasons.

Firstly, there are management frames for conveying state information of the link

layer, such as, state of the link layer scrambler, as taught by Doshi et al. (see page

8, third paragraph, second bullet). Secondly, since the upper layer is either a

gigabit Ethernet or a Fibre Channel, the data must be block encoded before

forwarding them to the upper layer.

Regarding claims 11, 12, 22, and 23, in addition to disclose the claim limitations

regarding claims 10 and 21, Azizoglu et al. further discloses the signals are being

mapped via a Sonet Framer 26 into byte synchronous Sonet OC-48 medium for

transport. See fig. 4, and col. 6, lines 7-9.

Regarding claims 13 and 24, in addition to disclose the claim limitations

regarding claims 10 and 21, Azizoglu et al. further discloses the step of forming

an Optics GbE/FC fibre channel signal representing the block encoded data. See

fig. 4, and col. 6, lines 16-18.

Regarding claim 14, although Azizoglu et al. does not explicitly further disclose

the step of forming an enterprise systems connection (ESCON) signal

representing the block encoded data, it is well known in the art that the enterprise

systems connection uses similar encoding scheme as the gigabit Ethernet and

fibre channel.

Regarding claims 25, 27, and 28, Doshi et al. discloses a SDL frame embodied in signal conveyed over Sonet, comprising:

- Length Indicator and variable length Information fields within the payload (a variable length packet, a length field, and payload portion for conveying data; claims 25 and 27). See fig. 3, SDL Frame Format, page 7, section 1, Length Indicator Field, lines 1-2, and section 4, Information Field, lines 4-5.

- An Offset Field that contains control messages between a transmitter and a receiver. The length indicator has special values to indicate the types of control messages (Type field representing whether it is a data or a control frame; claim 25). See fig. 3, SDL Frame Format, and page 7, Offset Field section, second paragraph, lines 1-3.

However, Doshi et al. does not disclose the claim limitations of a fibre channel (claim 27) nor ESCON (claim 28) data frames.

Azizoglu et al. discloses interfacing to an Optics GbE/FC fibre channel (also see fig. 4) but he does not disclose the claim limitation of ESCON data frame.

However, it is common practice in the art that the ESCON uses similar decoding scheme as the gigabit Ethernet and fibre channel.

Therefore, it would have been obvious to those having ordinary skill in the art, at the time of invention, to include the SDL protocol, Fibre Channel, and ESCON into the system for couple of reasons. Firstly, there are huge number of ESCON and Fibre Channel based computer network and storage installations built by IBM and others storage manufacturers since early 1990s.

Secondly, one of the key motivations to use the variable length SDL is to replace

the variable length HDLC to transport the upper layer data over the Sonet

medium. Since the HDLC uses flags with bit stuffing operation for frame

boundary delineation, the bit stuffing operation expands offered load. This causes

interferences with the QoS management as taught by Doshi et al. See page 2,

second paragraph, lines 11-13.

Regarding claim 26, in addition to disclose the claim limitations regarding claim

25, Doshi et al. further discloses a Header CRC field for error correction. See fig.

3, SDL Frame Format, and page 7, section 2, Header CRC Field, lines 1-2.

5. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.

S. Pat. No. 6,430,201 issued to Azizoglu et al. in view of the admitted prior art,

titled, "A Simple Data Link (SDL) Protocol for High-Speed Packet Networks",

written by Doshi et al. in further view of U. S. Pat. No. 6,195,355 issued to

Demizu.

Regarding claim 8, Azizoglu et al. discloses the claim limitations of a method for

use in a communication system, comprising:

a) Receiving a GbE-1 signal represents block encoded data. See fig. 2.

b) Decoding, via the 8B/10B codec 22-1, the received signal for removing the

   block encoding from the data. See fig. 2.

Doshi et al. discloses the claim limitations of:

c) The PDU of the Simplified Data Link, SDL, comprises a header portion and a payload portion. The payload portion comprises an Offset Field that contains control messages between a transmitter and a receiver. The length indicator has special values to indicate these types of control messages (Type field representing whether the data represents a data frame or a control frame; claims 2 and 16). See fig. 3, SDL Frame Format, and page 7, Offset Field section, second paragraph, lines 1-3.

However, neither Azizoglu et al. nor Doshi et al. discloses the claim limitations of:

d) Comparing the determined type to a type of previous data.

e) If the determined type is different from the type of previous data, formulating the previous data into a variable length payload data unit for transmission.

f) If the determined type is not different from the type of previous data, storing the data in a buffer.

Demizu discloses a method of transmitting a frame containing variable number of cells, comprising:

d. In step S2, the priority type of a frame is determined. See fig. 13, and col. 14, lines 30-32.

e. In steps S5 and S8, the cells are outputted if the priority types of the frames are different. Also see fig. 13, and col. 14, lines 40-42, and lines 46-47.

f. In steps S3, S6, and S7, cells are continuously collected if the priority types of the frames are the same. Also see fig. 13, and col. 14, lines 51-58.

Therefore, it would have been obvious to those having ordinary skill in the art, at

the time of invention, to collect all the data belong to the same type into a single

PDU before transmission. The motivation being the receiver will receive the PDU

containing a single data type. Furthermore any control type that may require

reserved resources can be assigned with higher priority as taught by Demizu. See

col. 15, lines 21-25.

Regarding claim 9, in addition to disclose the claim limitations regarding claim 8,

Demizu further discloses, in step S1, a predetermined value is set in a counter, if

the number of cells received exceeds the value in the counter indicating the buffer

is full, output the cells in step S8. See fig. 13, and col. 14, lines 27-29.

Contact Information

6. Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Daniel K. Lam whose telephone number is (703)
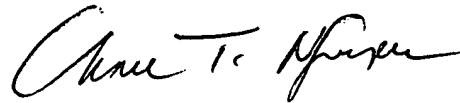305-8605. The examiner can normally be reached on Monday-Friday from 8:30
AM to 4:30 PM.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Chi Pham can be reached on (703) 305-4378. The fax phone number
for this Group is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or
proceeding should be directed to the Group receptionist whose telephone number
is (703) 305-4700.

Information regarding the status of an application may be obtained from the
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direct.uspto.gov. Should you have questions on access to the Private PAIR
system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DKL *dkl*
March 18, 2004

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